

A Cross-National Trial of Brief Interventions with Heavy Drinkers

ABSTRACT

Objectives. The relative effects of simple advice and brief counseling were evaluated with heavy drinkers identified in primary care and other health settings in eight countries.

Methods. Subjects (1260 men, 299 women) with no prior history of alcohol dependence were selected if they consumed alcohol with sufficient frequency or intensity to be considered at risk of alcohol-related problems. Subjects were randomly assigned to a control group, a simple advice group, or a group receiving brief counseling. Seventy-five percent of subjects were evaluated 9 months later.

Results. Male patients exposed to the interventions reported approximately 17% lower average daily alcohol consumption than those in the control group. Reductions in the intensity of drinking were approximately 10%. For women, significant reductions were observed in both the control and the intervention groups. Five minutes of simple advice were as effective as 20 minutes of brief counseling.

Conclusions. Brief interventions are consistently robust across health care settings and sociocultural groups and can make a significant contribution to the secondary prevention of alcohol-related problems if they are widely used in primary care. (*Am J Public Health.* 1996;86:948-955)

WHO Brief Intervention Study Group

Introduction

Alcohol-related disabilities have become a major source of concern in both developed and developing countries. Traditional approaches to the management of alcoholism have favored labor intensive medical and social rehabilitation rather than early identification and less intensive interventions. In 1980, a World Health Organization expert committee stressed the need for efficient methods to detect persons with harmful and hazardous alcohol consumption before health and social consequences become pronounced and called for the development of strategies that could be applied in primary health care settings with a minimum of time and resources.¹ Harmful alcohol consumption is defined as a maladaptive pattern of drinking that is causing physical or psychological harm. Hazardous alcohol use refers to drinking patterns (e.g., frequent intoxication) that have a high probability of causing harm.

Within this context, the World Health Organization Collaborative Project on Identification and Treatment of Persons with Harmful Alcohol Consumption was initiated in 1982 to develop a scientific basis for screening and brief intervention in primary care settings. The purpose of this project was twofold. In the first phase, six collaborating centers representing a broad variety of cultural groups contributed to the development of a simple instrument to screen for persons at high risk of alcohol problems in both developing and developed countries.²

The second phase of the project was initiated in 1985 to test the usefulness of alcohol screening when it is linked to methods of brief intervention. The aims were to study the relative effects of simple advice and brief counseling on short-term changes in hazardous drinking behavior

and to investigate the mediating role of reduced consumption on the occurrence of alcohol-related problems.

It was hypothesized that the reduction in alcohol consumption over a 9-month period would be proportional to the intensity of the intervention, with increased benefits (in comparison with those for control patients) resulting from simple advice and brief counseling. Although several studies have demonstrated that groups exposed to brief interventions drink less and experience fewer health problems than those receiving no advice,³⁻⁶ other studies have failed to demonstrate the superiority of specific types or amounts of brief intervention.⁷⁻¹¹ The relatively small samples available in many of these studies could have obscured small effects that may nevertheless be meaningful in terms of large-scale public health programs.

On the basis of research indicating that reduced drinking is associated with improved liver function, fewer sick days, less time in the hospital, fewer social problems, and lower mortality rates, it was further hypothesized that patients who reduce their drinking will also experience fewer alcohol-related problems.^{3,4,6,12}

A third aim of this research was to investigate the cross-national generalizability of brief interventions. To the extent that brief interventions are based on sound behavioral principles, are directed

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at universally recognized high-risk drinking patterns (e.g., frequent alcohol consumption, high amounts of drinking per occasion), and are used with persons without severe alcohol dependence, the response to such interventions should be similar across different cultural groups and health care settings. This hypothesis is based on evidence that similar motivational and behavior change strategies have been effective with high-risk drinkers in a variety of different countries, including Sweden, the United Kingdom, Canada, Norway, and Finland.^{3-5,11-15} Because these studies differ in the type of intervention and in the characteristics of the patients, the present study was conducted in a variety of countries to evaluate the cross-national generalizability of these findings.

Methods

A randomized clinical trial was conducted by the World Health Organization at collaborating centers in Australia, Bulgaria, Costa Rica, Kenya, Mexico, Norway, the United Kingdom, Russia, the United States, and Zimbabwe. These 10 centers were chosen because of their access to facilities needed to test the robustness and generalizability of brief interventions. The settings included general hospital wards, emergency departments, primary care clinics, a teachers college, and a health screening agency. All centers followed appropriate institutional review procedures recommended by the World Health Organization. One center (Bulgaria) was dropped from these analyses because of failure to randomize patients properly; another center (Costa Rica) was not included because it lacked a control group. A more complete description of the methods and findings is provided in the technical report,¹⁶ which is available from the World Health Organization.

Study Samples

The eight centers contributed the following numbers of patients to the total sample: Sydney, Australia, 273 men, and 124 women; Nairobi, Kenya, 174 men and 26 women; Mexico City, Mexico, 196 men; Bergen, Norway, 37 men and 15 women; Cardiff, Wales, 164 men; Moscow, Russia, 156 men; Farmington, Connecticut, 152 men and 113 women; and Harare, Zimbabwe, 119 men and 10 women.

Of the 1559 eligible patients initially recruited at the eight centers, 75% were successfully interviewed for the follow-up evaluation. Because of differences in the

way the research protocol was implemented at some centers, the time at which the follow-up evaluation was completed varied across centers (from 6 months at Bergen to 18.9 months at Moscow). On average, patients were contacted 9 months after random assignment to either control or intervention conditions.

The average age of the male sample was 36.9 years, with patients in the developing countries tending to be younger and less educated. Except for the English-speaking centers (Sydney, Cardiff, Farmington), the proportion of divorced patients was relatively low, with most patients either single (32%) or married (58%). The women were younger than the men (35.9 years), were better educated (12.4 vs 11.2 years), and had a higher prevalence of separation or divorce (17% vs 8%). There were significant differences across sites on all background variables.

Study Design

Eligible patients were randomized to a control group, a simple advice group, or a group receiving brief counseling. The control group received only a 20-minute health interview; this interview constituted the baseline assessment for all outcome measures. These individuals were then contacted 9 months later for a follow-up evaluation. The simple advice group was exposed to the same health interview plus 5 minutes of advice about the importance of sensible drinking or abstinence. They were told that they seemed to be drinking too much. Mention was also made of any problems they had described in the interview that could be related to their drinking. An illustrated pamphlet was then used to review the alcohol content of local drinks and to provide guidance about whether to choose total abstinence or a low-risk drinking goal. The most important part of the simple advice procedure involved the "sensible drinking limits," which were suggested if the patient chose a nonabstinent drinking goal. These limits were no more than three or four drinks per occasion for men and no more than two or three drinks per occasion for women. Both men and women were advised to drink no more than 4 or 5 days per week.

After the interview, the brief counseling group was given the same pamphlet as the simple advice group, but this was followed by 15 minutes of counseling about drinking. The brief counseling referred to a 30-page illustrated problem-solving manual that described the benefits

of moderate drinking or abstinence, ways of coping with high-risk drinking situations, and constructive alternatives to drinking.

The two core intervention strategies (simple advice and brief counseling) were selected because they represent the minimum and the maximum amount of effort primary care workers could be expected to devote to patients at risk of drinking problems in a single session. Simple advice was chosen as the minimal intervention to determine whether social influence, as communicated through firm advice to modify unhealthy drinking, would be sufficient to motivate patients to modify their drinking. The brief counseling strategy was chosen to evaluate whether drinking may be even more amenable to change when behavioral techniques are added to social influence.

Collaborating investigators could add an optional "extended counseling" condition. This consisted of three follow-up visits after the brief counseling session to provide the patient with periodic support and encouragement. Patients were asked to return 1 month, 3 months, and 6 months after the initial intervention. The extended counseling condition was included because periodic follow-up, information feedback, and social reinforcement often have been integral components of successful interventions in secondary prevention programs. Five centers added this group to the core design (Australia, Norway, Mexico, the United States, and Russia).

The training of the health advisers was standardized across centers. Female health advisers conducted the interviews and interventions with 76.1% of the patients. Health advisers were most often nurses (46.3% of patients); relatively equal proportions of patients were interviewed by doctors (17.7%), psychologists (17.3%), and other professionals (18.7%).

Baseline Assessments

After screening and random assignment to the intervention conditions, a 20-minute interview was conducted. The initial part of the interview asked about general health, nutrition, smoking, stress, and sleep. The purpose of these items was to disguise the specific purpose of the study so that members of the control group did not learn that their drinking behavior was the primary focus of the study and to present the drinking questions in the context of a general health survey where presumably they would be less threatening.

The section on drinking habits asked about drinking behavior, drinking problems, and dependence symptoms. In this section, the "trilevel" method of measuring alcohol consumption, developed and validated for cross-national research in the first phase of the project,² was used. Subjects were asked to define what, for them, constituted "low-level," "medium-level," and "high-level" drinking, according to the amount of alcohol and types of drinks consumed. The frequency of drinking at each of these levels during the previous month was noted. If the last month was not "typical," the corresponding frequencies for a typical month were also recorded. The alcohol content of different beverages was recorded by percentage, making it possible to calculate the exact amount of alcohol (in centiliters) consumed during the previous month and during a typical month.

Six questions were asked about symptoms considered to be early indicators of alcohol dependence. Patients were also asked about social consequences of drinking, such as injuries to themselves or others, legal problems, and unemployment. Three questions referred to concern expressed or advice received about drinking from family, friends, persons at work or doctors or other health workers.

In those centers where the native language was not English, it was necessary to translate all questionnaires, interviews, and manuals. World Health Organization guidelines for achieving a good translation of the study materials were followed, including back translation and discussion of discrepancies.

Inclusion/Exclusion Criteria

The initial screening interview was used to identify two types of drinkers: (1) those who are at risk of chronic health problems because they drink more than 50 g per day (men) or 32 g per day (women) and (2) those who drink heavily, to probable intoxication, frequently enough to be at risk of accidents, arrests, poor job performance, or other social problems. Level of alcohol consumption was selected as an inclusion criterion because of clinical and epidemiological research suggesting that the risk of harmful medical effects increases for men when consumption exceeds the range of 40 to 60 g of ethanol a day (approximately four drinks); risk levels are somewhat lower for women.¹⁷⁻¹⁹ The other major inclusion criterion, consumption of alcohol that would result in frequently elevated blood alcohol concentrations, was selected to

define a population of drinkers at risk of alcohol-related problems associated with acute intoxication. For a 160-lb (72-kg) man, this would be approximately six drinks in a single session.

The following criteria were used to exclude drinkers who were inappropriate for participation: (1) a prior history of serious mental illness, liver damage, or alcohol dependence, as suggested by prior treatment for these conditions; (2) pregnancy; (3) warning by a doctor or other professional to refrain completely from alcohol; (4) past or recent history of morning drinking; (5) recent consumption of extremely high amounts per day (i.e., 120 g for men or 80 g for women); (6) social/residential instability; and (7) age less than 18 years or more than 70 years. Persons who were identified as drinking above the level of risk but who also appeared to be too impaired to qualify for the study were referred to appropriate treatment.

After transfer of the data to the coordinating center, inclusion and exclusion criteria were again reviewed through the use of additional data obtained from the intake interview. This review revealed that 10.2% of the randomized men and 11.3% of the randomized women failed to meet universal inclusion/exclusion criteria imposed by the coordinating center. Approximately half of the subjects were excluded because the screening procedure inadvertently allowed subjects who drank too little; the rest were excluded because the screening test admitted subjects who drank too heavily. There were no significant differences across groups assigned to the three study conditions on key demographic and drinking behavior variables, regardless of whether the inappropriately randomized subjects were included or excluded. These data indicate that the exclusion of these subjects did not compromise the randomization procedure.

Follow-Up Evaluation

The follow-up evaluation consisted of a revised version of the intake interview. The sections on drinking habits and medical symptoms were administered again to determine whether the simple advice or brief counseling actually resulted in reductions in drinking, drinking problems, and dependence symptoms. Patients at all centers except Cardiff and Bergen were administered the alcohol dipstick, a rapid method for analysis of ethanol in body fluids,²⁰ to obtain an objective measure of recent alcohol con-

sumption and to demonstrate to patients that the investigators were very interested in obtaining scientifically accurate information about their drinking.

Reliability and Validity of Verbal Report Data

Several design features were incorporated to minimize, detect, and evaluate experimental bias connected with the use of self-report measures of drinking behavior. These included various validity enhancement techniques to prevent inaccurate reports of alcohol consumption, the use of parallel measures to check the consistency of patients' self-reported alcohol consumption, the collection of drinking data from a small sample of collateral informants to check the accuracy of self-reports at baseline, the monitoring (at one site) of liver enzymes thought to be sensitive to changes in alcohol consumption, and the evaluation of all patients by the health adviser and follow-up interviewer in terms of their accuracy and honesty. The parallel consumption measures demonstrated excellent reliability for the primary outcome measures, in that interview and questionnaire measures of drinking produced similar results. In addition, interviewers' ratings of patients' honesty and accuracy were generally high, suggesting that patients were motivated to respond accurately. This may be a reflection of the validity enhancement techniques used at the time of the follow-up evaluation, which stressed the critical need for accurate information. These procedures included the use of the alcohol dipstick method to encourage accurate responding, having the follow-up interviews conducted by a person other than the health adviser, and asking the patients to sign a simple "accuracy" contract.

Data Analysis

As a means of evaluating the independent contributions of the interventions, the effects of two demographic variables (age and education level) were controlled by analysis of covariance. In addition, the initial levels of each dependent variable were entered as covariates to control for differences across conditions in baseline levels of the various primary and secondary outcome measures. In order to control for site differences in the implementation of study procedures and broader sociocultural factors, the sites were included in the analysis of covariance model as an independent factor along with study condition.

TABLE 1—Adjusted Means and Analysis of Covariance Results for Primary Outcome Measures from Eight Cross-National Study Centers, WHO Brief Interventions with Heavy Drinkers Trial

	Control Condition, Mean	Simple Advice Condition, Mean	Brief Counseling Condition, Mean	F		
				Condition	Center	Condition × Center
Male patients						
Average daily consumption	6.29	5.18	5.29	11.12***	5.39***	1.31
Intensity	11.23	10.01	10.16	5.36**	4.01***	1.23
Female patients						
Average daily consumption	3.80	3.39	2.99	0.72	1.71	2.74*
Intensity	6.83	6.27	5.96	1.14	3.64*	2.13

Note. Sample sizes were as follows: control group, 404 men and 84 women; simple advice group, 392 men and 111 women; and brief counseling group, 453 men and 102 women.

* $P < .05$; ** $P < .01$; *** $P < .001$.

TABLE 2—Percentages of Male and Female Patients Who Increased, Decreased, or Remained at the Same Level of Alcohol Consumption

	Average Daily Consumption			Intensity of Drinking		
	Control	Simple Advice	Brief Counseling	Control	Simple Advice	Brief Counseling
Male patients						
Decreased	29.0	40.8	40.3	32.9	43.5	46.4
No change	54.5	53.1	50.3	48.6	47.8	42.1
Increased	16.5	6.1	9.3	18.4	8.7	11.5
Female patients						
Decreased	35.7	43.2	45.1	29.8	42.3	51.0
No change	58.3	48.6	50.0	59.5	43.2	41.2
Increased	6.0	8.1	4.9	10.7	14.4	7.8

Note. Sample sizes were as follows: control group, 407 men and 84 women; simple advice group, 392 men and 111 women; and brief counseling group, 461 men and 102 women.

An analysis of variance procedure called multiple classification analysis was used to evaluate the direct effects of the interventions; covariates and site differences were controlled simultaneously.

Samples assigned to the brief counseling and extended counseling conditions were combined to take full advantage of the data collected. There were several reasons for this strategy. First, three of the eight centers (Nairobi, Cardiff, and Harare) did not include the optional extended counseling condition in their study design. Second, analysis of the data at the five sites with extended counseling indicated no differences between this condition and the brief counseling condition. Finally, several centers (e.g., Moscow, Mexico City) reported that there was minimal compliance with the return visits required for extended counseling, thereby diluting its potential effectiveness.

The primary dependent variables were follow-up measures of both the

typical daily amount of alcohol consumed (in centiliters of absolute ethanol) and the intensity of drinking on typical drinking days. The measure of typical daily consumption averaged the total amount consumed in the previous 6 months over the entire number of days (regardless of whether the patient drank on a given day). The intensity measure estimated how much was consumed only on drinking days. In interpreting the data, it may be useful to note that 1 oz equals 3 cL of alcohol. When significant effects of the interventions could be demonstrated on measures of drinking behavior, additional analyses were performed on measures of alcohol-related problems.

Subjects lost to follow-up (25% of the sample) were compared with those who participated in the follow-up in terms of demographic factors and drinking behavior. Subjects lost to follow-up were generally lower in socioeconomic status and higher on indicators of alcohol use

and problem severity. As a means of correcting for the potential bias resulting from subjects missing at follow-up, imputed follow-up scores that assumed no change in alcohol consumption from baseline for those subjects lost to follow-up were used in conducting all analyses.

Results

Table 1 presents adjusted means for the primary outcome measures (average daily consumption and intensity of drinking) at follow-up for men and women. The means were adjusted for the effects of covariates. The results for men indicate significant differences among conditions for both outcome measures. Although there were significant differences across centers, there were no interaction effects on either outcome measure between condition and center. This means that the main effects for treatment condition were consistent across centers.

TABLE 3—Percentages of Male Patients Reporting Abstinence, Hazardous Drinking, and Alcohol-Related Problems in 6-Month Period prior to Intervention and following Exposure to Three Study Conditions

	Control (n = 403), %	Simple Advice (n = 387), %	Brief Counseling (n = 471), %	χ^2
Completely abstinent ^a				
Pretest	0	0	0	...
Posttest	2	5	8	...
Daily or almost daily drinking ^c				
Pretest	19	18	19	8.7*
Posttest	23	16	14	
Above recommended weekly limit ^d				
Pretest	77	78	74	7.2*
Posttest	65	57	57	
"Hazardous" daily consumption ^e				
Pretest	67	69	65	11.0**
Posttest	58	49	47	
At least one recent complaint				
Pretest	50	54	56	1.5
Posttest	39	35	40	
At least one recent problem				
Pretest	32	37	39	3.6
Posttest	37	28	35	

Note. Chi-square analyses were used to test for significant associations between treatment group and outcome status for each variable. Outcome was defined dichotomously, with posttest status as a criterion. Chi-square tests were performed on the posttest frequencies for each dichotomous outcome variable.

^aPatient reported no drinking during previous 6-month period.

^bNot calculated because of small cell sizes.

^cPatient reported drinking 28 to 31 days per month.

^dFor men, no more than 3–4 standard drinks per day, no more than 4–5 days per week (approximately 24 cL ethanol per week or 3.4 cL ethanol per day).

^e40 g (4.30 cL) average daily consumption.

* $P < .05$; ** $P < .01$.

Comparison of the baseline and follow-up scores on the primary outcome variables across conditions showed that while all groups reduced their drinking at follow-up, the intervention groups (simple advice and brief counseling) had significantly ($P < .05$, two-tailed t tests) greater reductions than the control group. For example, whereas the control group reduced its typical daily consumption by approximately 7%, patients in the simple advice and brief counseling groups reported 27% and 21% less drinking, respectively.

The differences between the control and intervention groups in the amount and intensity of drinking were accompanied by similar reductions in the number of drinking days but not in the frequency of dependence symptoms, problems related to alcohol, or concern expressed by others.

The results for women (Table 1) show that neither of the F values for treatment condition differences attained

statistical significance. Although these results indicate that there were no differences among conditions at the time of the follow-up evaluation, repeated measures analysis of covariance indicated significant main effects for time (baseline vs follow-up) on both primary drinking measures. Post hoc comparisons of the before and after means revealed significant reductions within all conditions, with the percentage change in the intervention groups somewhat higher than that in the control group.

Table 2 shows the proportions of men and women whose drinking at the time of the follow-up evaluation, relative to baseline levels, had decreased, increased, or remained the same. Patients lost to follow-up were assumed to have experienced no change. With one standard drink (approximately 1.5 cL ethanol [14 g or 0.5 oz]) as the criterion for both increased and decreased consumption, Table 2 shows that 29.0% of the men in the control group had reduced their

average daily drinking at follow-up, whereas 16.5% had increased. In contrast, the changes for the simple advice group (40.8% decreased, 6.1% increased) and the brief counseling group (40.3% decreased, 9.3% increased) were more pronounced. Regarding the intensity of drinking, Table 2 shows even greater differences between the intervention and control groups. Whereas 32.9% of the control group men had reduced the intensity of their drinking by one standard drink or more, 43.5% of the simple advice group and 46.4% of the brief counseling group had changed this much. Similarly, smaller proportions of the intervention groups (8.7% simple advice, 11.5% brief counseling) increased drinking in comparison with the control group (18.4%). Chi-square analyses were conducted to test for significant associations between treatment group and change status at follow-up. The results were significant for both average daily consumption ($\chi^2 = 35.8$, 4 df , $P < .001$) and intensity of drinking ($\chi^2 = 30.9$, 4 df , $P < .001$).

The results for women show a similar trend toward decreased consumption in the intervention groups. Although the treatment groups did not differ significantly in terms of average daily consumption ($\chi^2 = 4.6$, 4 df , NS), there were significant differences in the intensity of drinking ($\chi^2 = 9.5$, 4 df , $P < .05$). In comparison with the control patients (29.8%), a greater proportion of patients assigned to the simple advice (42.3%) and brief counseling (51.0%) conditions reported decreased intensity of drinking.

Tables 3 and 4 show percentages of male and female patients within each condition who reported abstinence, hazardous drinking, and alcohol-related problems before and after participation in the study. It was assumed that the status of patients lost to follow-up had not changed from baseline. Table 3 shows that, in comparison with control patients (2.0%), greater percentages of the male study participants were abstinent following exposure to the simple advice (5.0%) and brief counseling (8.0%) conditions. Similar trends were observed in the proportions of patients reporting daily or almost daily drinking (28 or more days per month). Daily drinking increased 4% in the control group (from 19% to 23%), whereas it decreased 2% in the simple advice group (from 18% to 16%) and 5% in the brief counseling group (from 19% to 14%). These differences were statistically significant.

An obvious question regarding the effectiveness of brief interventions concerns the number of patients who succeeded in reducing their alcohol consumption to the recommended "sensible drinking" limits. Table 3 shows that 65% of the male control group patients, in comparison with 57% of those receiving simple advice and brief counseling, failed to achieve this target at follow-up. Although the differences between the control and intervention groups were statistically significant, the follow-up proportions indicate that more than half of the patients in the intervention groups were still drinking above the recommended limits.

A related criterion to evaluate the clinical significance of reduced consumption is the number of patients who were still drinking at "hazardous" levels at follow-up. As a means of estimating the extent to which hazardous drinking was reduced, patients were classified according to whether their average daily consumption exceeded 40 g (4.3 cL) of pure ethanol per day. The results show that while there was a 9% reduction in the control group (from 67% to 58%), the reductions in the simple advice group (20%) and the brief counseling group (18%) were approximately twice as great. Although similar reductions occurred in the proportion of patients reporting at least one episode of concern expressed about their drinking by others and the proportion experiencing at least one alcohol-related problem in the previous 6 months, the chi-square values were not significant.

The results for women are presented in Table 4. Consistent with previously reported findings, the reductions tended to be almost as great in the control group as in the intervention groups; there were no significant differences among conditions on any measure.

As an additional check on the randomization procedure, an intention to treat sample consisting of both appropriately and inappropriately randomized subjects was used in conducting all analyses. Although effect sizes tended to decrease, the same pattern of results was obtained. For men, there were significant differences among conditions in average daily consumption and drinking days, but the intensity measure no longer reached statistical significance. For women, the two analyses produced similar results, showing no significant differences among conditions on any of the dependent variables.

TABLE 4—Percentages of Female Patients Reporting Abstinence, Hazardous Drinking, and Alcohol-Related Problems in 6-Month Period prior to Intervention and following Exposure to Three Study Conditions

	Control (n = 83), %	Simple Advice (n = 109), %	Brief Counseling (n = 105), %	χ^2
Completely abstinent ^a				
Pretest	0	0	0	...
Posttest	4	7	12	...
Daily or almost daily drinking ^c				
Pretest	19	12	18	1.4
Posttest	17	12	11	
Above recommended weekly limit ^d				
Pretest	78	84	86	1.3
Posttest	65	57	61	
"Hazardous" daily consumption ^e				
Pretest	76	81	84	0.7
Posttest	60	54	57	
At least one recent complaint				
Pretest	29	20	26	1.1
Posttest	21	14	17	
At least one recent problem				
Pretest	17	18	27	3.5
Posttest	6	17	14	

Note. Chi-square analyses were used to test for significant associations between treatment group and outcome status for each variable. Outcome was defined dichotomously, with posttest status as a criterion. Chi-square tests were performed on the posttest frequencies for each dichotomous outcome variable.

^aPatient reported no drinking during previous 6-month period.

^bNot calculated because of small cell sizes.

^cPatient reported drinking 28 to 31 days per month.

^dFor women, no more than 2–3 standard drinks per day, no more than 4–5 days per week (approximately 13.3 cL per week).

^e20 g per day = 2.15 cL ethanol.

Discussion

The findings of this cross-national study, particularly those pertaining to male heavy drinkers, provide support for the hypothesis that brief interventions, ranging from 5 minutes of simple advice to 20 minutes of advice plus counseling, can produce a significant reduction in both the average amount of alcohol consumption and the amount consumed per occasion. These findings are consistent with results of previous large-scale randomized clinical trials^{3,4} and with the results of a number of smaller studies^{5,6,12,14,15} spanning a wide variety of health care settings and drinking subcultures. To the extent that the results of the present study generalize across drinking cultures, socioeconomic groups, and intervention settings, they constitute an important affirmation of recent expert committee recommendations that screening and brief interventions should be conducted routinely in primary care settings to detect hazardous and harmful drinkers.^{1,21}

The results show a significant effect of the interventions on both of the primary outcome measures—average alcohol consumption and intensity of drinking—in the male samples, even after control for demographic factors and socio-cultural influences. No differences were found between the two intervention conditions. Five minutes of simple advice were as effective as brief counseling and extended counseling (up to three follow-up sessions).

On average, the male patients assigned to the intervention conditions reported drinking approximately 1 cL less absolute alcohol per day and on each drinking occasion. This is a difference of approximately one standard drink. In terms of average daily alcohol consumption, patients exposed to the interventions reported drinking approximately 17% less (17.6% simple advice, 15.9% brief counseling) than those in the control group.

Reductions in the intensity of drinking were approximately 10% (10.9%

simple advice, 9.5% brief counseling). The results (Table 2) suggest that approximately 11% of male patients exposed to a brief intervention will respond favorably, in addition to the spontaneous improvement seen in 29%. While these changes may not be dramatic, they should be considered in terms of their impact on public health and the relatively low cost of this type of secondary prevention. Moreover, these estimates are likely to be conservative, given the analysis strategy of imputing baseline values for patients who were not followed up. Although these patients were more likely to be heavier drinkers, it was the heavier drinkers in the sample who responded most to the interventions.

The results indicate that there was not a significant reduction in concern expressed by others or in alcohol-related problems. These findings suggest that the social, occupational, and health consequences of heavy drinking and intoxication are not so closely linked to alcohol consumption that small reductions in drinking can have a substantial impact. The failure of the interventions to directly reduce alcohol-related problems may also be a result of the selection criteria, which screened out patients who had serious or frequent harmful alcohol consumption.

For women, significant reductions were observed in both the control and the intervention groups, with no significant differences between the adjusted means on any of the primary outcome measures. Although there is some indication in the comparisons of percentage changes (Table 2) that members of the intervention groups reduced their intensity of drinking significantly more than members of the control group, the results suggest that brief interventions do not contribute as much to the reduction of heavy drinking in women as they do in men.

Research findings on the effects of brief interventions with women have been inconsistent. In the study involving the greatest number of women ($n = 268$), Wallace et al. reported similar reductions for both men and women receiving advice and counseling from a general practitioner.³ In a study of general practice patients in England, Scott and Anderson found that while male patients exposed to a brief intervention decreased their alcohol consumption significantly more than control patients, female patients in the control group changed as much as those in the intervention group.²²

The results of the present study showed that the type of intervention was

not related to the amount of change in drinking behavior, with 5 minutes of simple advice as effective as brief counseling that included a self-help manual and, in some cases, as many as three follow-up visits. No significant differences were observed between simple advice and brief counseling, suggesting that the skills training communicated through the brief counseling and the self-help manual had little effect beyond the advice, personalized feedback, and general information provided by the simple advice leaflet. The lack of an additive effect is consistent with the results of other research.^{9,10,23,24} These studies and the results of the present study suggest that, in this population of heavy drinkers, behavior change is a function more of motivational factors and social influence than of the moderation skills and social learning techniques that are typically used in behavioral self-control training programs.²⁴ This conclusion applies best to the type and range of interventions that were included in the present study. These interventions were deliberately designed to be brief, noninvasive, and efficient, placing minimal demands on the time and skills of the primary care professional. Until it can be demonstrated that multiple sessions with a health adviser add significantly to changes in drinking behavior with this population, more intensive interventions, including the use of self-help manuals in conjunction with counseling, may be unwarranted.

The findings summarized in Table 3 indicate that the changes in men's drinking were not attributable solely to the small number of patients who achieved an abstinence goal or to those who gave up daily or almost daily drinking. Rather, the changes seem to have been distributed across a broad spectrum of the drinkers who reduced their consumption by small but clinically meaningful amounts. These findings suggest that moderate drinking goals can be achieved by a substantial proportion of heavy drinkers and that such goals may represent the easiest initial step in any attempt to approach and intervene with heavy drinkers who are not seriously dependent on alcohol. It remains to be seen whether more stringent goals than those proposed in the present study would have resulted in a greater amount of change. Nor can it be inferred that these changes are permanent, although several studies have reported positive effects that last for 2 years or more.^{4,12} As a final caveat, it should be noted that the results of the present study

were derived entirely from self-report information. Although there is no reason to question the reliability or validity of the data,¹⁶ it is conceivable that self-report bias may have influenced the magnitude of the differences found between the experimental and control groups.

In conclusion, the results for men showed that the differences between the control and intervention groups were consistent across the eight participating centers. These results suggest that brief interventions at the primary care level, particularly those involving simple advice with male heavy drinkers, are remarkably robust and should generalize to a variety of different health care settings and sociocultural groups. While the results for the women are less compelling, the data are sufficiently encouraging to conclude that simple advice and brief counseling may be useful adjuncts to a screening program for women as well. □

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